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CONTROLLING APPARATUS FOR GAME MACHINES

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(57) Claim

1. An apparatus for controlling a plurality of game machines each of which has pay-out means for paying out coins according to the kind of prizes or hits of games, said apparatus being provided with means for indicating a pay-out value for a particular prize or hit, and said apparatus comprising:

first calculating means for calculating a first accumulation value by accumulating a first value which is an insertion value of coins at a first rate, said insertion value corresponding to the number of coins inserted into each of said game machines;

second calculating means for calculating a second accumulation value by accumulating a second value which is said insertion value at a second rate; and

controlling means for ordering said indicating means to indicate one of said first and second accumulation values as said pay-out value, for ordering said pay-out means of a said

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game machine in which said particular prize or hit occurs to pay out coins of which number corresponds to said pay-out value, and for ordering said indicating means to indicate the other of said first and second accumulated values as said pay-out value after said particular prize or hit occurs.

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Complete Specification for the Invention entitled,

"CONTROLLING APPARATUS FOR GAME MACHINES."

The following statement is a full description of this invention, including the best method of performing it known to us.

CONTROLLING APPARATUS FOR GAME MACHINES

BACKGROUND OF THE INVENTION

The present invention relates to a controlling apparatus for game machines, and more particularly to a controlling apparatus for coin-operated game machines such as slot machines into which coins or tokens (which are hereinafter referred to as "coins" for simplicity) are inserted for playing a game.

There are placed a large number of coin-operated game machines in casinos or game centers which uses a control system that the game machines are divided into some groups in each of which a special favor is enjoyed when a specific win is accomplished. For example, slot machines are divided into groups each of which has about 20 to 30 slot machines and particular hits or winnings such as jack-pots (a jack-pot is the largest hit of a slot machine game and is hereinafter referred to as a "JP") are processed for each group by a so-called progressive method.

In this progressive JP-process, a master control unit controls a plurality of slot machines, for example, 30 slot machines as one group and accumulates a predetermined percentage of an amount of money corresponding to the number of coins inserted into each slot machine of the group. When a JP occurs in one of the slot machines, the master control unit orders the slot machine to pay out coins of which number

corresponds to the accumulated money. As the accumulated money to be paid out is indicated with an indicator, players can enjoy the games with expectation of hitting a JP which brings an enormous amount of money increasing as time passes.

5 In a conventional JP-process by the progressive method, the accumulated money by the master control unit is cleared to zero and the indicator correspondingly indicates zero after one JP occurs. Therefore, the players are disappointed, losing their interest in hitting a JP.

10 To settle this problem, in another progressive JP-process, a minimum amount of money is set up and the accumulation starts from the minimum amount of money. A player hitting a JP can receive prize money more than the minimum amount of money even when the JP occurs infrequently soon after the last occurrence of JP. However, the minimum amount of money can not be set too high, because of pay-out ratio. Accordingly, 15 the amount of money for a JP which occurs soon after the last JP is substantially small.

OBJECT OF THE INVENTION

20 It is therefore an object of the present invention to provide a controlling apparatus for game machines, by which expectation of making a particular hit is not lost even just after an occurrence of the particular winning.

SUMMARY OF THE INVENTION

25 For achieving this and other objects and advantages, according to the present invention, there is provided a controlling apparatus comprising first and second calculating

means and a controlling means. The first calculating means calculates an accumulation value by accumulating, at a predetermined rate, insertion values of coins inserted in each of game machines belonging to one group. The second calculating means calculates an another accumulation value by accumulating, at another predetermined rate, the insertion values. The controlling means orders an indicator to indicate one of the accumulation values as a pay-out value representing the amount of money of the number of coins to be paid out when a particular hit such as a JP occurs. When the particular hit occurs in one of the game machines, the controlling means orders the game machine to pay out the coins according to the indicated pay-out value and order the indicator to indicate the other accumulation value as a new pay-out value. If the accumulation value is of a fraction, a value obtained by rounding-up or -down the fraction is indicated.

In a preferred embodiment of the present invention, the controlling apparatus further comprises a setting means for setting an initial value in the calculation means which has stored the accumulation value used as the pay-out value, after occurrence of the particular winning.

According to a feature of the present invention, as the pay-out value which is being accumulated and increasing in its magnitude is indicated, players can start or continue the game, having great expectation of obtaining a large amount of money, even just after the particular hit takes place.

According to another feature of the present invention, if a particular winning occurs just after the former occurrence

of the particular winning, large number of coins appropriate to the particular hit can be paid out for the hit because of setting of an initial value.

BRIEF DESCRIPTION OF THE DRAWINGS

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These and other objects and features of the invention will be seen by reference to the following description, taken in connection with the accompanying drawing in which:

10 Figure 1 is a schematic view showing a control system in which a master control unit embodying the present invention is used for controlling slot machines;

Figure 2 is a block diagram showing the master control unit of Figure 1;

15 Figure 3 is a block diagram showing a slave units in one slot machines of Figure 1;

Figure 4 is a time chart explaining sending/receiving of messages between one of the slave units and corresponding one of the machine control units of Figure 1;

20 Figure 5 is a time chart explaining sending/receiving of messages between the master control unit and one of the slot machine control units of the control system of Figure 1 through a corresponding slave unit;

Figure 6 is an illustration explaining basic format of a message used for communication performed by the control system of Figure 1;

25 Figure 7 shows a command code table, the command codes being included in messages for the communication;

Figure 8 is an illustration explaining schematically

a data request message used for the communication;

Figure 9 is an illustration explaining a coin data message used for the communication;

5 Figure 10 is a time chart explaining operation of switching of communication units provided in the master control unit of Figure 2;

Figure 11 is an illustration explaining a JP occurrence message used for the communication; and

10 Figure 12 is an illustration explaining a JP data message used for the communication.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to the drawings, wherein like reference characters designate like or corresponding parts throughout the twelve views. In Figure 1 shows a controlling system which operates in a progressive method for a particular hit such as JP. A master control unit 2 is provided with a pair of first and second connectors 3 and 4 having quite the same construction. Provided in a plurality of slot machines 5a, 5b, 5c, ---, 5x, 5y, and 5z making-up one group are a plurality of slave unit 6a, 6b, 6c, ---, 6x, 6y, and 6z respectively, each having a pair of first and second connectors 7 and 8. The master control unit 2 intercommunicates with each of the slot machines 5a to 5z through the slave units 6a to 6z by exchanging messages which includes data and commands relating operations of the slot machines 5a to 5z.

The first connector 3 of the master control unit 2 is connected with the first connector 7 of the slave unit 6a through communication lines 10 comprising a transmitting cable

10a and a receiving cable 10b. The second connector 8 of the slave unit 6a is connected with the first connector 7 of the next slave unit 6b through the communication lines 10. By repeating such connection with the communication lines 10, all 5 of the slave units 6a to 6z are connected in series. The second connector 8 of the last slave 6z is connected with the second connector 4 of the master control unit 2 through the communication line 10. After all these connections have been made, the master control unit 2 and the slave unit 6a to 6z 10 form a looped communication circuit. Each of the slot machines 5a to 5z incorporates respective slot machine control units 11a, 11b, 11c, ---, 11x, 11y, and 11z each incorporating a microprocessor for controlling their individual operation of 15 the respective slot machines 5a to 5z. Each of the slave units 6a to 6z exchanges messages including data and commands with the corresponding one of the slot machine control units 11a to 11z. There is provided an indicator 13 which is connected to 20 the master control unit 2 so as to indicate an amount of money to be paid out for the JP. This indicator 13 is provided in a place where the indicator 13 can be observed by all players playing the slot machine 5a to 5z.

As shown in Figure 2, the master control unit 2 comprises a communication block 2a and a JP-process block 2b. The communication block 2a is provided with the first and second connectors 3 and 4, a main microprocessor unit (which is hereinafter referred to as a "main MPU") 15, first and second communication units 16 and 17, a monitoring unit 18, a

selecting unit 19, a program memory (ROM) 22, and a RAM 23. The first and second communication units 16 and 17 have the same structure and function and they send messages to the slave units 6a to 6z and receive messages therefrom. The first communication unit 16 faces the first connector 3 and is provided with a transmitting device 16a and a receiving device 16b. The second communication unit 17 faces the second connector 4 and is provided with a transmitting device 17a and a receiving device 17b. The monitoring unit 18 monitors the state of the communication by checking the outputs of the receiving devices 16b and 17b of the first and second communication units 16 and 17 and outputs signals representing the state of the communication. According to the outputs of the monitoring unit 18, the selecting unit 19 selects one of the first and second communication units 16 and 17 and renders it operative. Therefore, the communication with the slave units 6a to 6z is carried out by using only one of the communication units 16 and 17.

In this embodiment, for optical communication, the transmitting devices 16a and 17a have light-emitting diodes 20a and 21a, and the receiving devices 16b and 17b have photo diodes 20b and 21b. It is to be noted that, as described before, only one of the communication units 16 and 17 is electrically actuated by the selecting unit 19. The transmitting and receiving cables 10a and 10b are made of optical fiber cables. The ends of these cables 10a and 10b are connected to or held in the connectors 3 and 4, which position the end faces of the cables 10a and 10b so as to face

the light-emitting diodes 20a and 21a and the photo diodes 20b and 21b.

According to programs for the communication, stored in the ROM 22, the communication units 16 and 17 and the monitoring unit 18 are operated in predetermined sequences and the RAM 23 stores the data in the received messages from the slave units 6a to 6z and a history of each slot machines 5a to 5z.

The JP-process block 2b has a sub-microprocessor unit (which is hereinafter referred to as a "sub-MPU") 25, two multiplying circuits 28 and 29, two accumulator 31 and 32, an indication value memory 26, an auxiliary memory 27, two setting units 34 and 35, an initial value setting unit 36, a maximum value setting unit 37, a driver 24, a JP code conformation circuit 39, and a program memory 40. The sub-MPU 25 controls operations in the JP-process block 2b according to sequences stored in the program memory (ROM) 40 and processes data relating a number of coins inserted in each of the slot machines 5a to 5z. First, a data of a value "M" representing an amount of money corresponding to the number of the inserted coins is sent from the main MPU 15 to the multiplying circuit 28 so as to be used for obtaining a data of a value "T" which is obtained from multiplying the value "M" by a constant "t" (total rate) less than "1". Then, the data of the value "T" is sent to the multiplying circuit 29 and used for computing two values "J" and "K". The values "J" and "K" are obtained by the following calculations:

$$J = t \times (1-x)/100$$

$$K = T \times x/100$$

where x is a storage rate. The storage rate " x " is entered with a keyboard 33 and is stored in the setting unit 35 and the total rate " t " is also entered with the keyboard 33 and is stored in the setting unit 34. A data of the value " J " is further sent to the accumulator 31 to obtain a value " I " which is calculated by accumulation of the value " J ". That is, the value " J " is added to a value " I_0 " read out from the indication value memory 26 and then the content of the indication value memory 26 is updated by write of the added value " I ". The obtained value " I " is stored in the indication value memory 26 and indicated by the indicator 13. As well as the value " J ", a data of the value " K " is further sent to the accumulator 32 and a value " S " is calculated by accumulating the value " K ".

Suppose that 0.01 (1 %) is set as the total rate " t ", 0.4 (40 %) is set as the storage rate " x ", and three coins of \$1 are inserted into one of the slot machines s_1 to s_2 for playing one slot game. According to multiplication and accumulation as described above, the value " J " ($J = 0.01 \times 0.6 \times 3$) is "¢1.8", and the value " K " ($K = 0.01 \times 0.4 \times 3$) is ¢1.2. These values " J " and " K " are accumulated in the accumulators 31 and 32 and stored in the indication value memory 26 and the auxiliary memory 27 respectively. If the amount of money to be indicated and paid out has a fraction, the fraction is rounded down. Or the fraction may be rounded up or off.

The initial value setting unit 36 is provided for

setting a predetermined initial value " S_0 " with the keyboard 33. After coins are paid out for a JP according to the value I stored in the indication value memory 26, the data in the indication value memory 26 is cleared to zero and then the value S stored in the auxiliary memory 27 is transferred to the indication value memory 26. The auxiliary memory 27, after resetted, stores the initial value " S_0 ". The initial value " S_0 " is previously determined based on JP occurrence probability and pay-out ratio. Accumulation of the value "K" starts from the value " S_0 " and then accumulation of the value "J" is performed after transfer to the indication memory 26. Hence, the initial value " S_0 " may be not so large.

The maximum value setting unit 37 is provided for setting a maximum value " IS_{max} " and can be variably set through the keyboard 33. A monitor 38 displays the values " t ", " x ", " S_0 ", and " IS_{max} " for easy grasp of JP-process. The JP code confirmation unit 39 confirms whether a message sent from the main MPU 15 is a JP occurrence message or not. The program memory 40 stores above-described sequences performed by the sub-MPU 25.

Figure 3 shows the schematic diagram of the slave unit 6a which is the same as the other slave units 6b to 6z. Therefore, the explanation for the slave units 6a to 6z will be given only for the slave unit 6a. The slave unit 6a comprises a micro processor unit (which is hereinafter referred to as a "slave MPU") 45, a first communication unit 46 having a first receiving device 46a and a first transmitting device 46b, a

second communication unit 47 having a second receiving device 47a and a second transmitting device 47b, an address setting unit 48 for allocating an address to the slave unit 6a, a ROM 49, a RAM 50, and a message checking unit 51. The ROM 49 stores
5 a sequential-processing program for the slave unit 6a, according to which the slave MPU 45 will operate. In the message checking unit 51, messages from the slot machine control unit 11a are checked as to whether or not the message meets conditions of a predetermined format. This slot machine
10 control unit 11a controls the sequence and the processes of the games of the slot machine 5a and outputs data such as the number of inserted coins to the slave unit 6a for JP-process by the progressive method described later. Further, when a hit occurs in the slot machine 5a, the slot machine control unit
15 11a pays out coins according to the kind of hit, driving a well-known hopper 55.

The first and second receiving devices 46a and 47a have photo diodes 52a and 53b respectively for receiving message signals, and the first and second transmitting device 46b and 47a have light-emitting diodes 52b and 53a for transmitting message signals. The photo diodes 52a and 53b and the light-emitting diodes 52b and 53a are the same in specification as those used for the receiving and transmitting devices 16a, 16b, 17a, and 17b in the master control unit 2 which performs optical communication.
20
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Each of the slot machine control units 11a to 11z controls the associated slot machine with respect to the following, in the order of operation sequence of the slot

machine for a game:

- detection of insertion of coins;
- measurement of the number of inserted coins;
- detection of pulling of the slot machine start

5 lever;

- operation of the starting and stopping of the slot
machine reels;

- decision as to whether the game is to be a hit or
not and of the kind of hit when the game is to be a hit; and

10 - operation of pay-out coins according to the kind of
the hit when the game is a hit.

When coins are inserted for a game, the slot
machine control unit generates and sends a coin data message to
the slave unit. The coin data message comprises a series of
several bytes including a start code for the first byte of 8
bits, a coin data code for intermediate bytes, and an end code
for the last byte. The coin data message depends on the number
of inserted coins.

The operation of this embodiment will now be described
20 in detail. Referring to Figure 3, the coin data message is sent
to the message checking unit 51 of the slave unit 6a from the
slot machine control unit 11a so as to be checked in format;
and only when the coin data message is correct as to format
does the slave MPU 45 store the data in the RAM 50. When the
25 coin data message is judged to be incorrect as to format, the
slave MPU 45 refuses to receive the coin data, and then the
coin data is not stored in the RAM 50.

Figure 4 shows an example of message communication between the slave unit 6a and the corresponding slot machine control unit 11a. Only the communication with respect to the slave unit 6a is explained because the communications with respect to the other slave units 6b to 6z are the same as that of the slave unit 6a. Upon correctly receiving a coin data message from the slot machine control unit 11a, the slave unit 6a sends a reception-correct message to the slot machine control unit 11a. But upon incorrectly receiving a coin data message from the slot machine control unit 11, the slave unit 6a sends a reception-error message to the slot machine control unit 11a. In this case, the slot machine control unit 11a again sends the same coin data message to the slave unit 6a. Furthermore, when no reception-correct message is sent to the slot machine control unit 11a from the slave unit 6a for a predetermined time Δt_X , the slot machine control unit 11a also sends the coin data message again. Such communication also takes place between each of other slave units 6b to 6z and the corresponding one of the slot machine control units 11b to 11z, and the data as to the number of the inserted coins is stored in each of RAMs 50.

The communication between the slave unit 6a and the communication block 2a of the master control 2 is illustrated by the time chart of Figure 5. A message including data and commands is generally constructed according to the basic format shown in Figure 6. The message consists of serial codes, namely a start code (STX), an address code (ADR), a command code (CMD), a text (TXT), a check sum (CHS), and an end code (EXT),

each of which is represented by a combination of binary digits "1" or "0". Each code consists of 8 bits except for the text (TXT).

A command code table is shown in Figure 7 in which the
5 upper four digits are arranged in a row and the lower digits
are arranged in a column. According to this table, the start
code is represented by "02" in hexadecimal notation, e.g.,
"H02", the end code is "H03", the data request command is
"H20", and the coin data code is "H30". The check sum (CHS)
10 is obtained, first by performing an exclusive OR operation in
which each digit from the start code (STX) to the text (TXT)
for each digit of the lower seven bits is added (eliminating
their carries), and secondly by setting the most significant
bit (MSB) "1". The check sum (CHS) obtained in this way is
15 used, as is well known, to make sure that the message includes
no error data.

The communication block 2a periodically sends data
request messages of a constant duration to the slave unit 6a
according to a sequence program stored in the program memory
20. The structure of the data request message is schematically
shown in Figure 8. In Figure 8, also their actual serial binary
signals corresponding to the data of the data request message
25. are shown. For example, at the time corresponding to the binary
signal "1", the light-emitting diode 20a will turn on.
Therefore, the data request message as well as other messages
is transmitted to the photo diode 52a of the slave unit 6a in a
form of a series of on-and-off light signals through the

transmitting cable 10a.

As shown in Figure 8, when the address code in the data request message is "&H35", the address code "&H35" specifies a slave unit having an address "5". When the slave unit 6a has an address "5", the slave unit 6a receives the data request message and in reply sends the coin data message including the number of the inserted coins to the communication block 2a through the first transmitting device 46b. The number of the inserted coins is read out from the RAM 50.

After the master control unit 2 has received the coin data message, the master control unit 2 sends a coin data confirmation message to the slave unit 6a to confirm whether the number is true or not. Then, the slave unit 6a collates the number of the inserted coins in the coin data confirmation message with the number of the inserted coins stored in the RAM 50. When the numbers coincide, the slave unit 6a sends a reception-correct message to the master control unit 2 and simultaneously clears the data in the RAM 50. If the numbers do not coincide, a reception-error message is sent from the slave unit 6a to the master control unit 2, and again the same data request message is sent to the slave unit 6a.

The slave unit 6a transfers the data request message, from the master control unit 2 to the next slave unit 6b, through the transmitting device 47a. Similarly, the next slave unit 6b also transfers the data request message to the slave unit 6c. In this way, the data request message is transferred by all the slave units and finally reaches the communication unit 17 of the communication block 2a, having fully traversed

the looped communication circuit. By operating the receiving device 17b of the second communication unit 17 while the first communication unit 16 is effective, the transmitting state of at least the communication cable 10a may be monitored by 5 checking the outputs of the receiving device 17b by the monitoring unit 18.

A coin data message is schematically illustrated in Figure 9, in which, following a command code having a code "&H30" indicating that this message is a coin data message, a 10 text having codes "&H31" and "&H35" is shown. These data "&H31" and "&H35" mean that the number of coins inserted into the slot machine 5a is fifteen. The coin data message, as described above, is comprised by a series of on-and-off light signals 15 from the light-emitting diode 52b in the transmitting device 46b, to be sent to the photo diode 20b of the communication block 2a through the communication cable 10b.

When the data of the number of the inserted coins is, 20 in this way, sent from the slave unit 6a having the address "5", the data is stored in the RAM 23 of the communication block 2a. After converting the data read out from the RAM 23 to a value of amount of money corresponding to the number of 25 inserted coin, the main-MPU 15 sends the value to the JP-process block 2b. In the JP-process block 2b, the value is computed with the multiplying circuits 28 and 29 successively, and accumulated by the accumulator 31 and 32 by two different rates, as described before. The two differently-accumulated values "I" and "S" are stored in the indication value memory 26

and the auxiliary memory 27 separately.

Suppose that the total rate "t" is set 0.01 (1 %), the storage rate "x" is set 0.4 (40 %), and the amount of money "M" corresponding to the number of the inserted coins is 3 (\$3).

5 According to the calculations, the value "J" is £1.8 and the value "K" is £1.24. The value "J" is accumulated to the value "I" stored in the indication value memory 26. The value "K" is accumulated to the value "S" stored in the auxiliary memory 27.

For collection, calculation, and storing as to the coin data of other slot machines 5b to 5z, the communication block 2a sends the data request messages successively to the slave units 6b to 6z, varying the address code. Therefore, the communication block 2a can obtain the coin data with respect to the number of coins inserted into each of the slot machines 5a to 5z. Based on every message, the values "I" and "S" in the indication and auxiliary memories 26 and 27 are updated.

Figure 10 shows an automatic detection against a case that the communication is partially interrupted due to disconnection of the communication line 10, for example, between the slave units 6w and 6x. The data request messages for the slave units 6x, 6y, and 6z can not reach each slave units 6x to 6z by use of the first communication unit 16. When the monitoring unit 18 detects that no coin data message from the slave unit 6x has been received for a pre-fixed time Δt_y because the slave unit 6a can not receive a data request message, the selecting unit 19 renders the second communication unit 17 operative in lieu of the first communication unit 16. Then, the same data request messages are transmitted out

through the transmitting device 17b in a reverse direction in
the looped communication circuit, reaching the slave unit 6x.
The slave unit 6x sends its coin data message in response, from
the second communication unit 47 to the second communication
5 unit 17 of the communication unit 2a. And thereafter other
slave units 6y and 6z which can not receive the data request
messages by use of the first communication unit 16 also can
successively receive the data request message and send their
coin data messages by the second communication unit 17. For
10 the next cycle of communication with the slave units 6a to 6w,
the first communication unit 16 is again rendered operative.
Then, for message exchange with the slave units 6x to 6z, the
second communication unit 17 is made effective alternatively by
monitoring unit 18 and selecting unit 19. In this way, even if
15 a cable disconnection occurs in this system, the communication
unit 2a can obtain messages from all of the slave units 6a to
6z by alternatively using either of the first and second
20 communication units 16 and 17 to continue the communication
without interruption.

20 : The time period Δt_y is set to be a little longer
than the period from the time when the data request message is
fed from the master control unit 2 until the time when the
response message from a corresponding slave unit reaches the
master control unit 2. An indicator may be provided to
25 indicate which communication cable is disconnected. After re-
connection of this communication cable, again the
intercommunication by means of only the first communication

unit 16 can resume.

Until the next JP occurs in any of the slot machines 5a to 5z, part ($0.6\% = 0.01 \times 0.6$) of the amount of money corresponding to the number of the inserted coins is
5 accumulated in the indication memory 26 and another part (0.4%) is accumulated in the auxiliary memory 27 for every coin insertion. The value "I" stored in the indication value memory 26 is indicated by the indicator 13 through the driver 24, letting players of the slot machines know the amount of money
10 to be paid out for a JP which occurs in the group of the slot machines 5a to 5z. It should be noted that only one or predetermined denominations of coin, for example \$1 coins, can be inserted in each of slot machines belonging to one group. Therefore coins of different denomination are rejected to be
15 inserted.

Because usually the probability of occurrence of JP is determined to be extremely small, the values "I" and "S" often increase to very large ones. Viewing the indicated vast amount of money, the players can enjoy the slot game with large
20 expectation of chance of getting the money. Because of setting of the maximum value " IS_{max} " for the values "I" and "S", the amount of money to be paid out for a JP can not exceeds the maximum value " IS_{max} ", for example, \$5,000. After the indicated value reaches the " IS_{max} ", the indicator 13 continues to indicate the " IS_{max} " and the accumulation of the values "I" and "S" stops until the next JP occurrence.
25

Next, a sequence of message exchanging between the master control unit 2 and one of the slot machine control units

6a to 6z will be explained for when a JP occurs in the corresponding slot machine. If a JP takes place, for example, in the slot machine 5a, a message having data representing the occurrence of a JP is sent from the slot machine control unit 11a to the slave unit 6a as shown in Figure 5, in order to store the data in the RAM 50. When a data request message for the slave unit 6a is sent from the master control unit 2, the slave unit 6a sends a JP occurrence message, whose schematic structure is illustrated in Figure 11. In the command code (CMD) and text (TXT) of this JP occurrence message, the JP code "&H31" representing the JP occurrence is contained commonly.

The communication block 2a of the master control unit 2 receives the JP occurrence message and collates the JP code of the message with a JP code stored in the JP code confirmation unit 19. When the two codes coincides, the communication block 2a orders the sub-MPU 25 in the JP-process block 2b to start JP process.

For the JP process, first, the value I stored in the indication value memory 26 is transferred to the main MPU 15 through the sub-MPU 25. The main MPU 15 sends a JP data message to the corresponding slave unit 6a. An example of the JP data message is shown in Figure 12, in which the command code (CMD) "&H21" represents that this message is a JP data message and the text (TXT) "2550" represents that the amount of money is \$2,550.00. The number of digits of the text (TXT) is set according to the number of digits of the amount of money to be paid out for a JP.

When this JP data message is applied to the slot machine control unit 11a through the corresponding slave unit 6a, the slot machine control unit 11a stores the data as to the amount of money to be paid out and sends to the main MPU 15 a JP data confirmation message for confirming that the data is correctly received. This message includes a command code (CMD) "&H33" representing a JP response and a text (TXT) representing the value "I" which has been received by the slot machine control unit 11a.

The communication unit 2a orders the sub-MPU 25 to judge whether the text code in this JP data confirmation message is valid or not by comparing with the data of the value "I". When the code is valid, a JP occurrence confirmation message is fed to the slot machine control unit 11a through the slave unit 6a. Then, the slot machine control unit 11a re-confirms that the JP has surely occurred in this slot machine 5a and sends a JP confirmation response message to the master control unit 2 so that the master control unit 2 makes a final confirmation of the occurrence of a JP in the slot machine 5a.

After the final confirmation, the master control unit 2 sends a JP pay-out message to the slave unit 6a, which instructs the slot machine control unit 11a to pay out coins. Upon reception of the JP pay-out message, a hopper 55 operates to pay out coins under control of the slot machine control unit 11a, according to the the value "I" as specified in the JP data message. The number of coins to be paid out is calculated according to the value "I" in the slot machine control unit 11a.

After the actual pay-out of the coins by the hopper

55, the slot machine control unit 11a sends a JP data reset message to the master control unit 2 through the slave control unit 6a. This JP data reset message includes a command code "&H34" representing reset of the value "I". After receiving the
5 JP data reset message, the communication unit 2a sends by way of confirmation, a JP reset confirmation message to the slot machine control unit 11a through the slave unit 6a and then, the slot machine control unit 11a sends a JP reset response message to the master control unit 2. When the master control
10 unit 2 has received the JP reset response message, the main MPU 15 sends a JP pay-out end message to the sub-MPU 25.

When the sub-MPU 25 receives the JP pay-out end message, the sub-MPU 25 clears the data of the indication value memory 26 and then transfers the value "S" in the auxiliary memory 27 to the indication value memory 26. Thereafter the sub-MPU 25 clears the data of the auxiliary memory 27 and then transfers the initial value " S_0 ", for example "1000", in the initial value setting unit 36 to the auxiliary memory 27, completing the whole of the JP-process.
15

20 There are many kinds of hit other than the JP and as is well known to those who are skilled in the art, for these hits, each slot machine control unit identifies the kind of each hit and orders the slot machine to pay out coins according to the identified kind.

25 According to the JP-process described above, even if a JP occurs immediately after the former JP occurrence, the amount of money to be paid out is not so small for the largest

hits because the value "I" for the JP starts from the value " S_0 " which is transferred to the indication value memory 26. Therefore, the player can start or continue slot machine games without reducing their pleasure.

5 In the above embodiment, at the beginning of the operation of the system, the indication value memory 26 is set "0", the auxiliary memory 27 is set "1000" transferred from the initial value setting unit 36, and the indicator indicates " S_0 ". A false JP pay-out end message may be fed to the sub-MPU 10 25 so as to set the initial value "1000" in the indication value memory 26 as the value "I". The constants "t", "x", and " S_0 " can be manually changed through the keyboard 33 at any time.

15 When the storage rate "x" is set larger than 0.5, the rate of increase of the value "S" is greater than that of the value "I" and accordingly the amount of money to be paid out for a JP is greater than that for the former JP, thereby stirring up speculative interest of the players.

20 Though the functions of the indication value memory 26 and the auxiliary memory 27 differ from each other in the embodiment, these memories 26 and 27 may be used equally for the indication and the pay-out. That is, after an occurrence of a JP, the initial value " S_0 " is set in the indication value memory 26. The value "S" in the auxiliary memory 27 is used as 25 the pay-put value for the next JP and is indicated by the indicator 13. When the memories 26 and 27 are thus used alternately, the storage rate "x" is preferably set 0.5.

There is another method determining the amount of

money to be paid out for a JP, other than the method as in the above embodiment, that is, the greatest value among the values "I", "S", and "S₀" may be used by comparison.

The indicator 13 in the embodiment is placed at a place where all players of the slot machines belonging to one group can view the indicator 13. Instead of the indicator 13, each slot machine may be provided with an indicator for indicating the amount of money to be paid out for a JP, or indicating the number of coins to be actually paid out because the denomination is predetermined for each group of the slot machines.

Though a hopper is used in each slot machine as payout means in the embodiment, a well known credit device may be provided in combination with the hopper. In slot machines with the credit device, coins are not actually paid out each hit but the number of coins to be paid out is accumulated by a credit counter and accumulated number of coins are displayed by a credit display of the credit device. Before a game starts, the number in the credit counter decreases by a predetermined value necessary for one game. A player can play game without insertion of coins until the number in the counter becomes "0". When the player discontinues the game though the number is not "0", an adjustment button of the credit device is operated and then coins whose number corresponds to the number in the credit counter are paid out with the hopper.

Obviously many other modifications and variations of the present invention are possible in the light of the above.

teachings. It is therefore to be understood that within the scope of the claims the invention may be practiced otherwise than as specifically described.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1. An apparatus for controlling a plurality of game machines each of which has pay-out means for paying out coins according to the kind of prizes or hits of games, said apparatus being provided with means for indicating a pay-out value for a particular prize or hit, and said apparatus comprising:

first calculating means for calculating a first accumulation value by accumulating a first value which is an insertion value of coins at a first rate, said insertion value corresponding to the number of coins inserted into each of said game machines;

second calculating means for calculating a second accumulation value by accumulating a second value which is said insertion value at a second rate; and

controlling means for ordering said indicating means to indicate one of said first and second accumulation values as said pay-out value, for ordering said pay-out means of a said game machine in which said particular prize or hit occurs to pay out coins of which number corresponds to said pay-out value, and for ordering said indicating means to indicate the other of said first and second accumulated values as said pay-out value after said particular prize or hit occurs.

2. An apparatus as claimed in claim 1, further comprising first setting means for setting an initial value of said accumulation values, said initial value being inputted into one of said first and second calculating means of which

accumulation value having been used as said pay-out value.

3. An apparatus as claimed in claim 2, further comprising second setting means for setting a maximum value for said pay-out value.

4. An apparatus as claimed in claim 3, further comprising third setting means for setting said first and second rates.

5. An apparatus as claimed in claim 4, wherein said third setting means comprises total rate setting means for setting a total rate so as to obtain a total insertion value which is multiplied by said insertion value and distribution rate setting means for setting a distribution rate by which said total insertion value is divided into said first and second rates.

6. An apparatus as claimed in claim 5, wherein said first and second accumulation values represent amount of money.

7. An apparatus as claimed in claim 5, wherein said first and second accumulation values represent number of coins.

8. An apparatus as claimed in claim 6 or 7, wherein said first calculating means comprises a first accumulator for obtaining said first accumulation value and a first memory for storing said first accumulation value, and said second calculating means comprises a second accumulator for obtaining said second accumulation value and a second memory for storing said second accumulation value.

9. An apparatus as claimed in claim 8, wherein said first accumulation value stored in said first memory is used as said pay-out value, said second accumulation value stored in said second memory is transferred to said first memory after paying out coins according to said particular prize or hit, and said initial value is set in said second memory.

10. An apparatus as claimed in claim 1, wherein said controlling apparatus and said game machines form a looped communication circuit in which said game machines are connected in series and both end game machines of said series-connected game machines are connected to said controlling apparatus, whereby said controlling apparatus receives a message containing data of said insertion value of coins inserted into each said game machines for each said game, and whereby when said particular prize or hit is made in a said game machine, said controlling apparatus orders said game machine to perform pay-out for said particular prize or hit.

11. A control apparatus for games machines substantially as herein described with reference to the accompanying drawings.

DATED this 27th Day of April, 1989

KABUSHIKI KAISHA UNIVERSAL

Attorney: PETER HEATHCOOTE
Fellow Institute of Patent Attorneys of Australia
of SHELSTON WATERS

FIG. 1

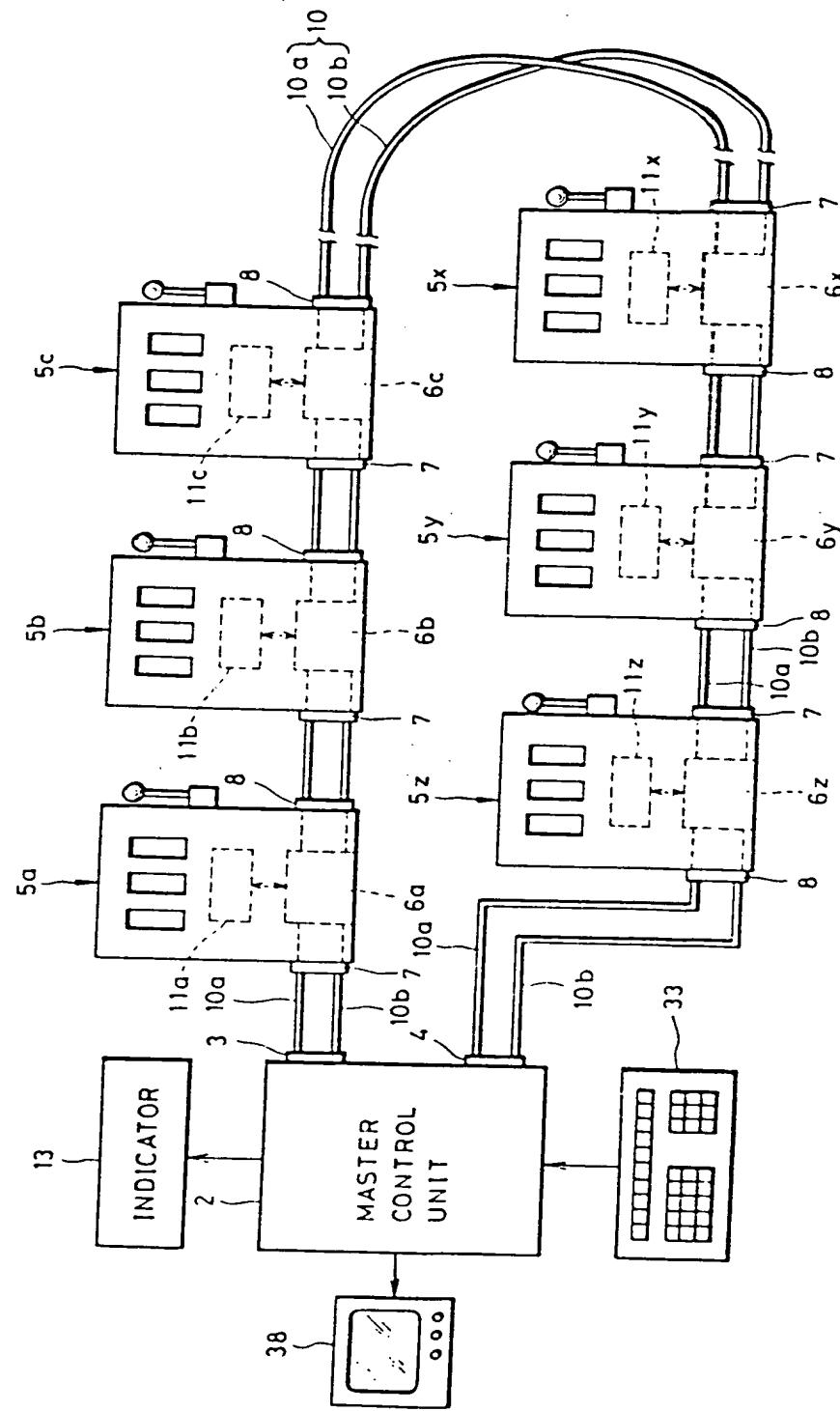


FIG. 2

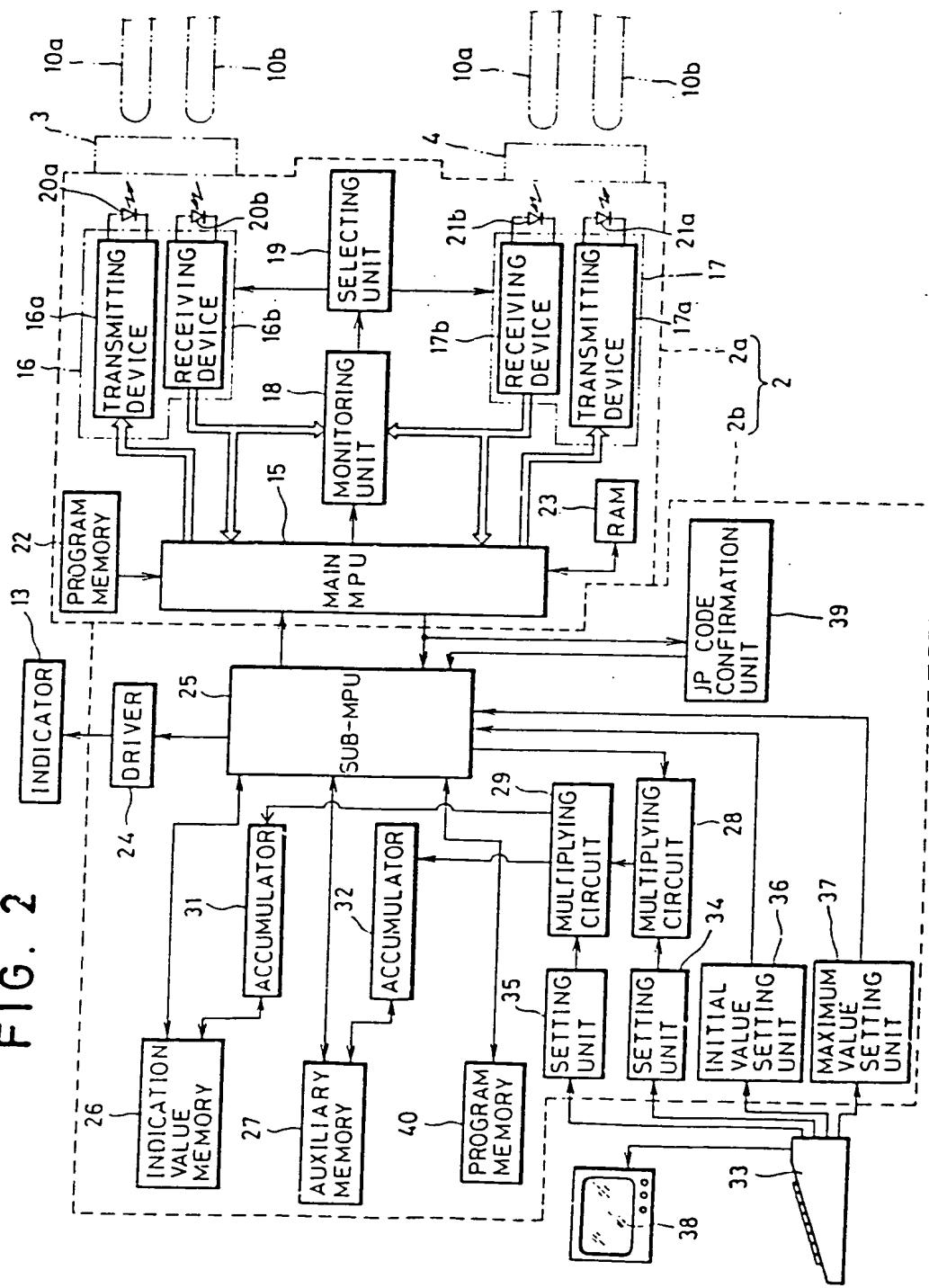


FIG. 3

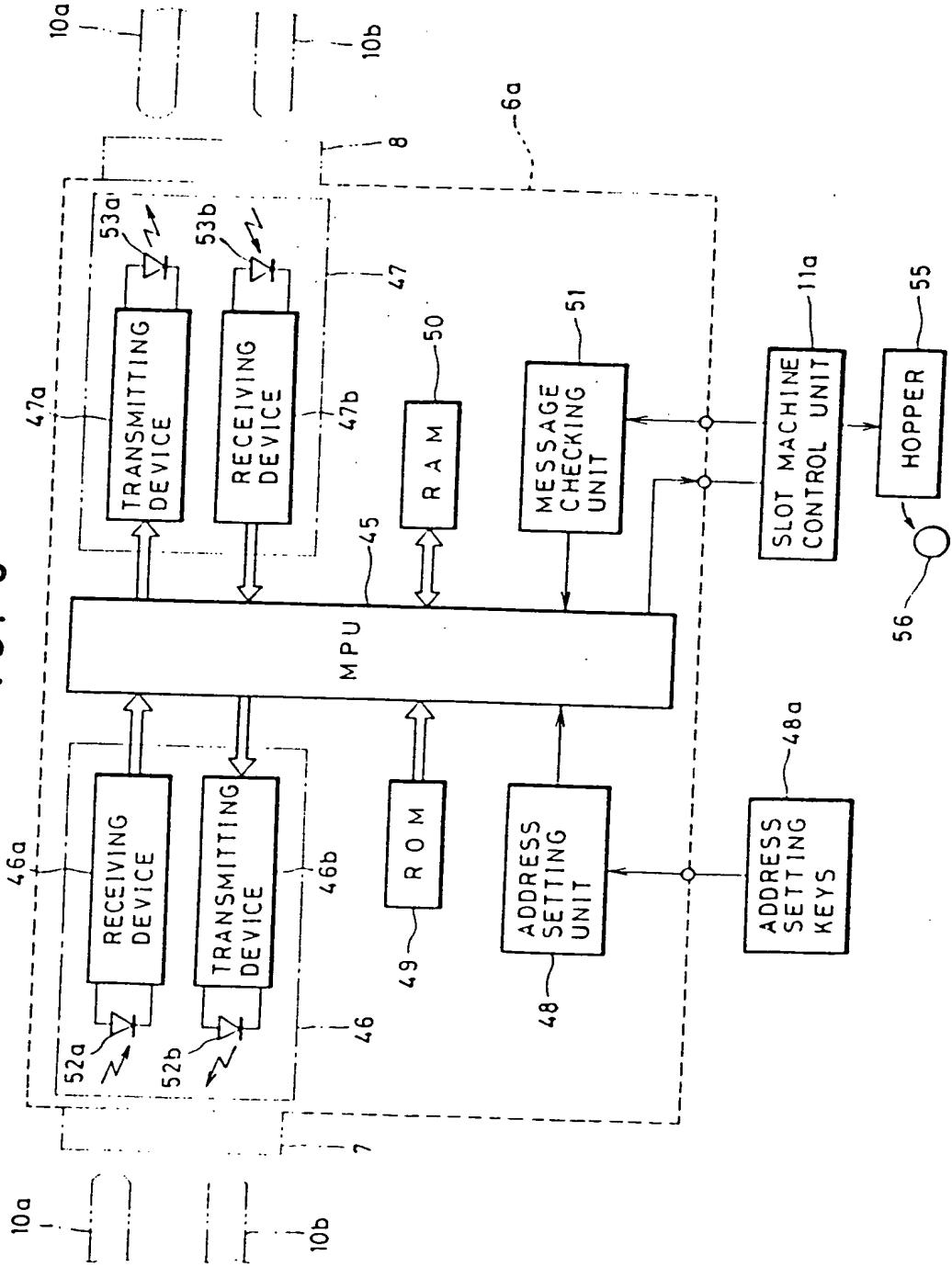


FIG. 4

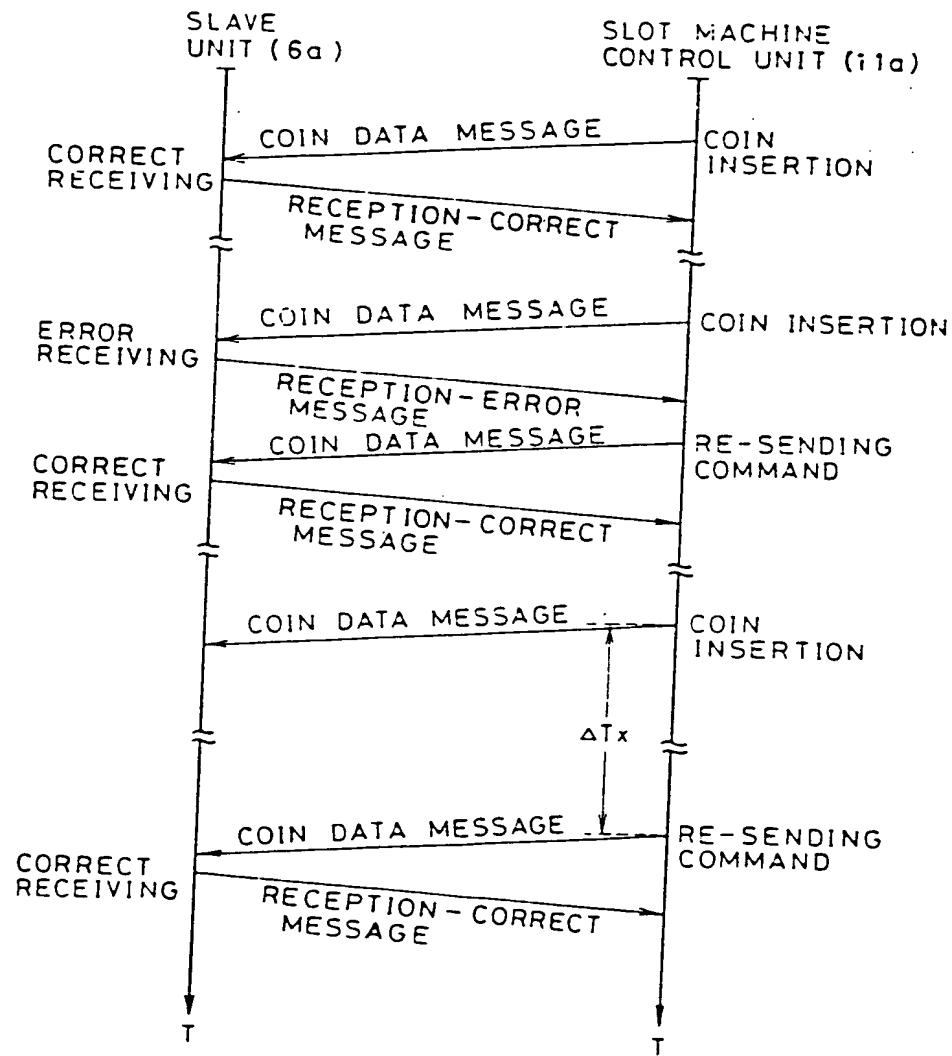


FIG. 5

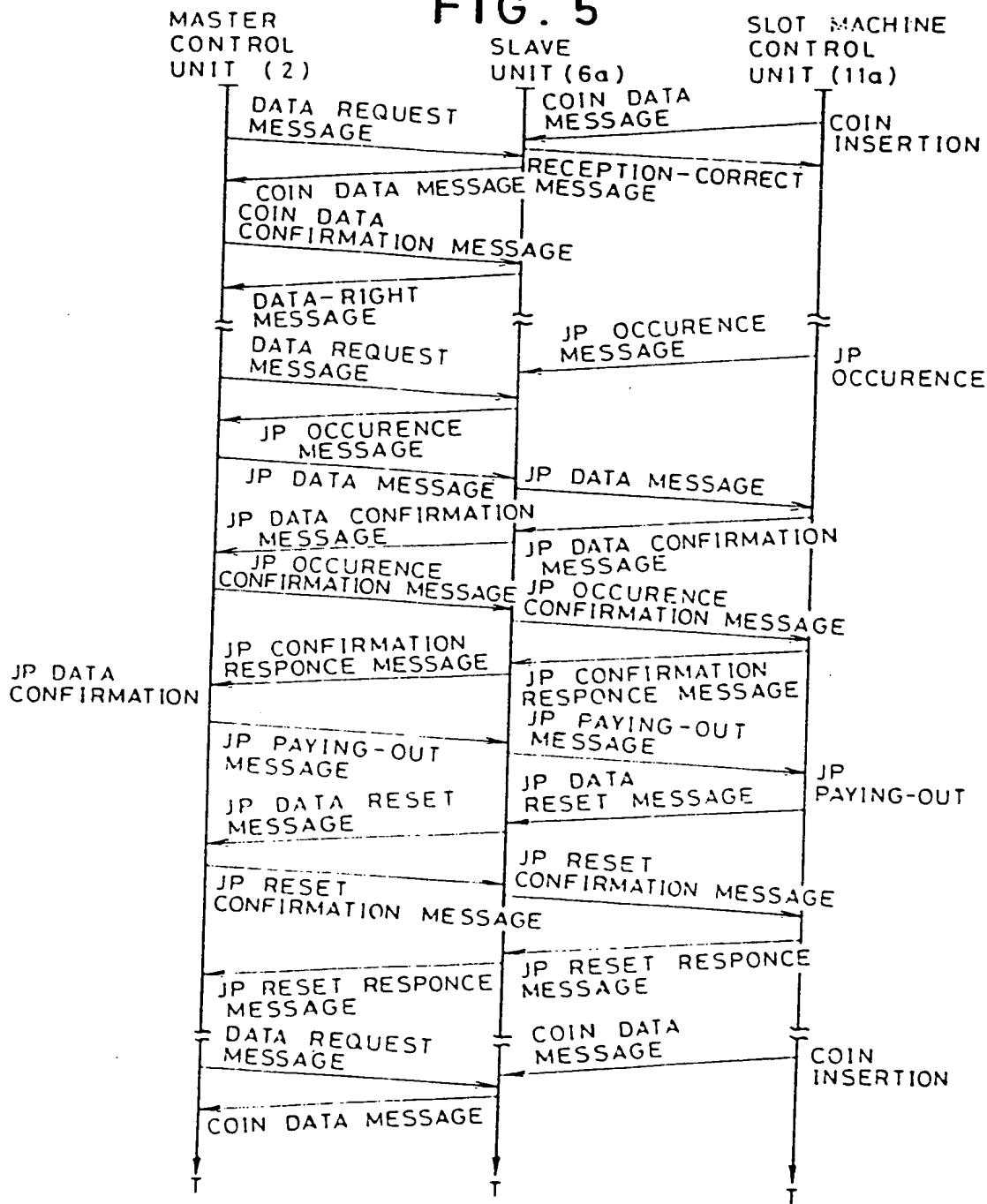


FIG. 6

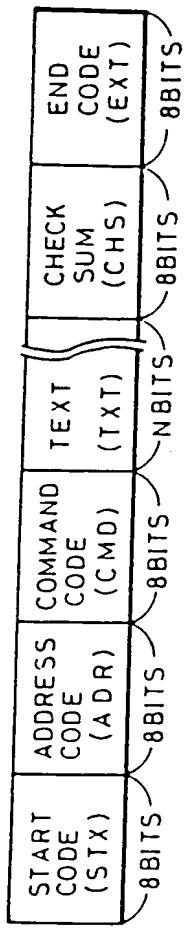


FIG. 7

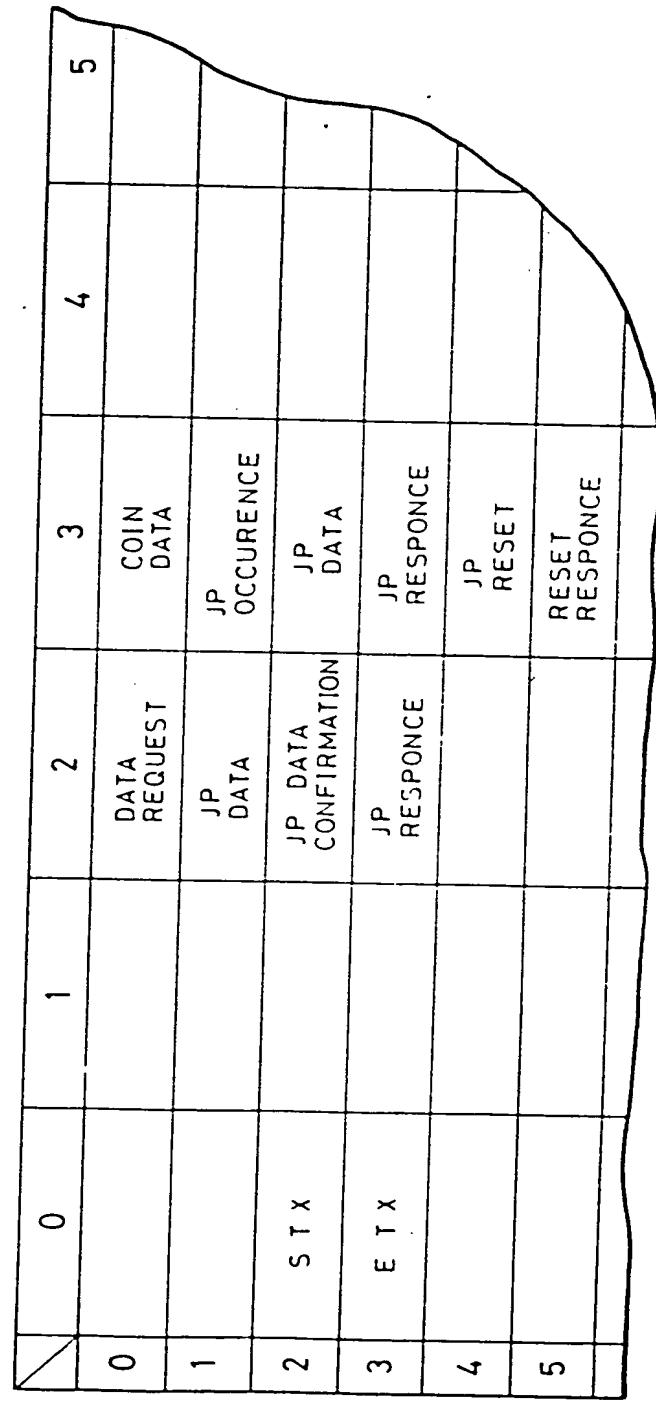


FIG. 8

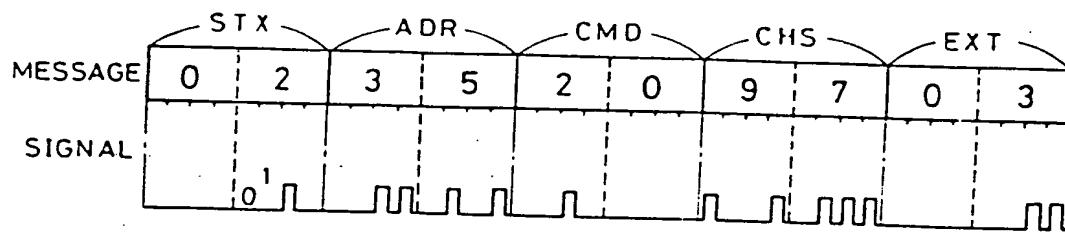


FIG. 9

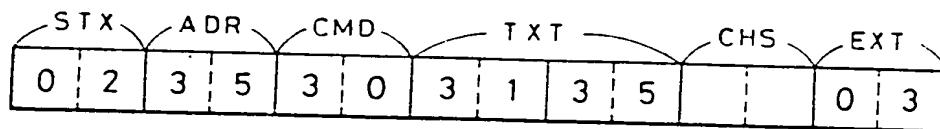


FIG. 11

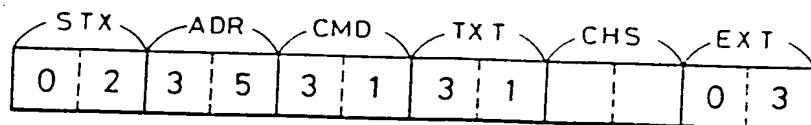
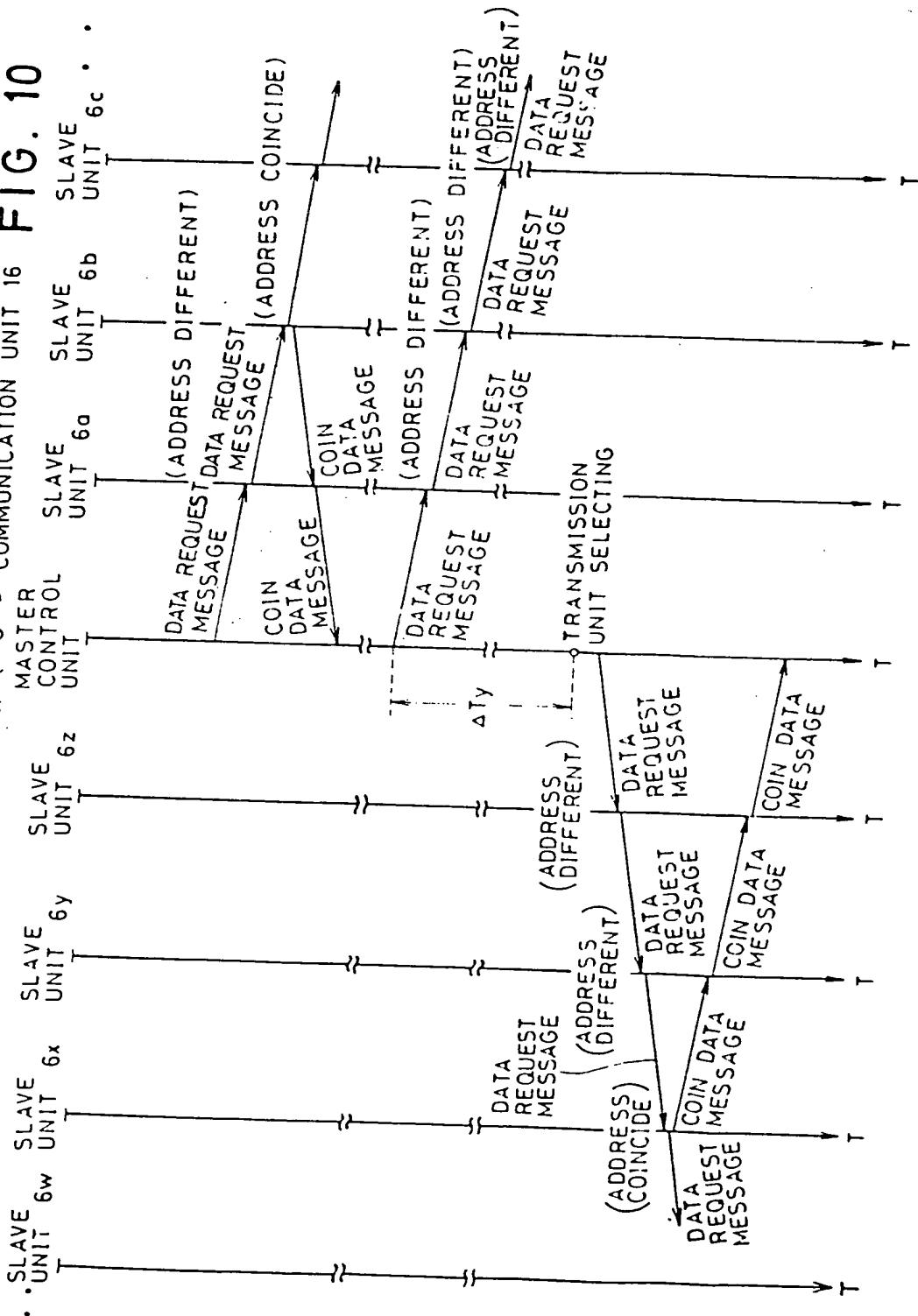


FIG. 12



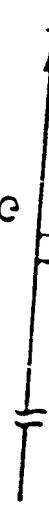
COMMUNICATION UNIT 17 → ← COMMUNICATION UNIT 16 FIG. 10



RECEIVING
CORRECT

MESSAGE
RECEPTION

AM ATAD N103



19

(12) PATENT ABRIDGMENT (11) Document No. AU-B-42326/89
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(57) Claim

1. A slot machine of a type comprising:

(a) credit means, for crediting a player with a number of credits;

(b) game initiation means operable by the player to initiate a game on the machine;

(c) display means adapted to display a plurality of indicia in response to the game initiation means;

(d) credit adjustment means arranged to alter the credit means in response to combinations of indicia shown by the display means;

(e) payout means operable by the player to return a payment corresponding to the credit recorded by the credit means; and

(f) control means for controlling the slot machine wherein the control means is provided with two operating modes, a first mode to prevent operation of the game initiation means unless a credit is recorded in the credit means and enable operation of the payout means, a second mode allowing operation of the game initiation means regardless of the credit recorded in the credit means, and preventing operation of the payout means only, such that switching between modes occurs in response to an electronic mode switching signal fed to the control means,

(11) AU-B-42326/89

(10) 630112

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said switching signal being sourced externally of the machine.

10. A gaming system comprising a plurality of slot machines connected to a central control unit, each machine having a credit means for crediting a player with a number of credits and a payout means operable by the player to return a payment corresponding to the credit recorded by the credit means, each machine being operable in two modes, a first mode in which a player must establish a credit with the credit means of the machine before a game can be initiated with that machine, and a second mode in which the player can initiate a game with the machine regardless of the credit recorded in the credit means of that machine, the payout means only being operable in the first mode, wherein the central control unit has a plurality of mode switching signal outputs which are connected to the respective mode switching signal inputs of each machine such that switching between the modes of operation for each machine is controllable from the central control unit.

COMMONWEALTH OF AUSTRALIA

Patent Act 1952

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Class Int. Class

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Complete Specification for the invention entitled:

"TOURNAMENT SYSTEM"

The following statement is a full description of this invention
including the best method of performing it known to us:-

The present invention relates generally to slot machines, otherwise known as poker machines or fruit machines and in particular the invention provides a new slot machine capable of operating in two distinct modes, 5 the first being substantially identical to that of known poker machines and the second being a "tournament" mode whereby the operators of the poker machine may make use of the machine in a non-paying mode to run a variety of competitions.

10 In the past, casinos have been known to provide slot machines for periods of free play, however such play has generally been confined to special machines set aside for this purpose and these machines were not readily switchable from free playing operation to normal 15 operation. The proposed invention permits any number of machines to be used in the conventional mode and to be changed at will to a free playing mode or back again to the conventional mode with a minimum of time and effort.

According to a first aspect the present invention 20 consists in a slot machine of a type comprising:
(a) credit means, for crediting a player with a number of credits;
(b) game initiation means operable by the player to initiate a game on the machine;
25 (c) display means adapted to display a plurality of indicia in response to the game initiation means;
(d) credit adjustment means arranged to alter the credit means in response to combinations of indicia shown by the display means;
30 (e) payout means operable by the player to return a payment corresponding to the credit recorded by the credit means; and
(f) control means for controlling the slot machine wherein the control means is provided with two operating 35 modes, a first mode to prevent operation of the game

initiation means unless a credit is recorded in the credit means and enable operation of the payout means, a second mode allowing operation of the game initiation means regardless of the credit recorded in the credit means, and
5 preventing operation of the payout means, such that switching between modes occurs in response to an electronic mode switching signal fed to the control means, said switching signal being sourced externally of the machine.

10 In a preferred embodiment, when the mode switching signal goes to the active state thereby switching the machine to the second mode of operation the control means of the machine waits for the completion of any uncompleted game and then disables the payout means, stores the credit
15 balance in temporary storage and zeroes the credit means. When the signal goes from active to inactive state the control unit freezes all operation of the machine until a control switch is operated, either by an external control source or manually on each machine, at which time the
20 credit balance in the credit means is retrieved from the temporary storage and the machine is switched back to the first mode of operation.

According to a second aspect the present invention consists in a gaming system comprising a plurality of slot
25 machines connected to a central control unit, each machine having a credit means for crediting a player with a number of credits and a payout means operable by the player to return a payment corresponding to the credit recorded by the credit means, each machine being operable in two
30 modes, a first mode in which a player must establish a credit in the credit means of the machine before a game can be initiated on that machine, and a second mode in which the player can initiate a game with the machine regardless of the credit recorded in the credit means of
35 that machine, the payout means only being operable in the

first mode, wherein the central control unit has a plurality of mode switching signal outputs which are connected to the respective mode switching signal inputs of each machine such that switching between the modes of 5 operation for each machine is controllable from the central control unit.

In a further preferred embodiment the central control unit includes a timer means which sets a prescribed period of time for each machine to remain in the second mode of 10 operation.

It is also envisaged that each machine may be switched back to the first mode of operation either by the central control unit or manually by an operator or casino attendant.

15 An embodiment of the invention will now be described by way of example with reference to the accompanying drawings in which:-

Fig. 1 illustrates a poker machine according to the present invention;

20 Fig. 2 schematically illustrates the interconnection of the various functional areas of the poker machine of Fig. 1;

25 Fig. 3 schematically illustrates a tournament controller for controlling a plurality of machines of the type illustrated in Figs. 1 and 2;

Fig. 4 is a block diagram of the tournament controller of Fig. 3 with machines connected thereto;

Fig. 5 illustrates the physical configuration of the tournament controller of Figs. 3 and 4; and

30 Fig. 6 illustrates a flow chart of the control sequence of a poker machine when in tournament mode.

Referring now to Figs. 1 and 2, typically poker machines include a secure housing 10 in which the control unit 11 and other functional components of the poker 35 machine are mounted, including a coin slot 12 and a coin

detector 13 which are provided to enable the player to "purchase" a game or games on the machine, a credit meter 14 to indicate the current credit of the player, the credit being provided either by insertion of coins into 5 the coin slot 12 or as a result of winning games on the machine, one or more game initiation switches 15, a payout device 16 which supplies coins to a payout chute 17 at the player's request and in response to the player's credit on the credit meter 14, indicia display means 18 which may 10 comprise a video screen or a plurality of rotatable wheels carrying strips of indicia on their periphery and a jackpot switch 19 which is used among other things to clear the machine after a large jackpot has been paid manually by casino staff. Some machines are also provided 15 with an additional display means such as a dot matrix display 21 which can be used to display messages to the player relating to his playing options, machine status or if the machine is not in use it may be employed to display messages to attract players to the machine.

20 In addition to these prior art machines, the machine of the present invention incorporates a mode switching signal input 22 (see Fig. 2) in the control unit. This signal input is used to indicate to the control unit when the machine is required to switch from a first or normal 25 play mode to a second tournament or free play mode and vice versa. This mode switching signal input 22 is generated by a tournament control unit centrally located in the casino and connected by similar signal lines to a plurality of machines within the casino.

30 Referring to Fig. 3, the tournament controller most preferably incorporates a "tree" or "nested" arrangement by which individual or several slot machines can be switched from first to second mode of operation. In the particularly preferred embodiment shown the central 35 control unit or tournament control centre includes several

timers 31, 32, 33, 34 which allows the operator to select a prescribed period of time in which the machine selected remains in the second mode of operation.

The timer means shown in Fig. 3 is made up of group 5 timer 31, and several sub-group timers 32, 33 and 34.

Group timer 31 is used to set a prescribed period of time for all machines connected, while sub-group timers 32 and 33 set a prescribed period of time for a sub-set of all the machines. Sub-group timers 34, in this case, may 10 set the time period for individual machines.

It can be seen therefore that any and all combinations of machines can be switched to the second mode of operation for any desired period of time.

In the present embodiment the timers are implemented 15 using electronic timer circuits, however it is envisaged that further embodiments would make use of microprocessor controls or any other suitable timer. A block diagram of the tournament controller of Fig. 3 with slot machines 10 connected is illustrated in Fig. 4.

20 In this particular instance twenty-eight slot machines 10 are connected. The group timer 31 controls all twenty-eight machines. Sub-group timers 32 and 33 control fourteen machines each and sub-group timers 34 control individual machines, through signal input 22.

25 An example of the physical arrangement of a simplified version of the controller is illustrated in Fig. 5 in which the tournament control panel 41 is illustrated as having twenty eight adjustable timer switches 43, there being one for each machine connected to 30 the controller. Associated with each machine timer 43 is also a mode switching/timer start switch 44 and a timing indicator light 45 which are used, respectively, to switch a selected machine to the second or tournament mode thereby start the timer and to indicate that the timer is 35 still operating and the machine remains in second or

tournament mode. As well as the individual machine timers 43, the control panel 41 is provided with a single group timer 46 with its associated start switch 51 and indicator light 52. The control panel 41 is also provided 5 with a mains power indicator light 48, a system indicator 49 to indicate when the system is turned on and a key operated system power switch 47 which is provided to ensure that the system is not used by unauthorized persons.

Turning to the individual poker machines in the 10 gaming or tournament system, each machine as previously stated is connected to the central tournament control unit via a mode switching signal line 22. When that signal goes to its active, or tournament, state, a preferable procedure as illustrated in the flow chart of Fig. 6, is 15 executed.

When the mode switching signal is received by an individual machine which is in the first operating mode, the machine tests to determine whether the current game is complete. If not, the machine remains in the first or 20 normal play mode until completion of the current game is achieved. Having completed the current game, the "press to collect" button or payout means is disabled, preventing the machine from paying out any values credited to the credit meter. The contents of the credit meter previous 25 to the machine entering the second or tournament mode are temporarily stored by the machine, for retrieval after the tournament mode is completed, and the credit meter is zeroed ready for a tournament to commence.

The machine controller 11 (in Fig. 1) then commences 30 operating in a second or tournament mode whereby the machine can be played without inserting coins or deducting credits from the credit meter. During this tournament mode, however, winning combinations still result in a credit being credited to the credit meter. During 35 tournament mode apart from the disabling of the "press to

collect" button, and there being no need to have a credit on the credit meter to play a game, the machine operates in its normal manner with the player being able to initiate games and amass credits on the credit meter in 5 the normal way.

When the machine detects that the prescribed period set by the time is up and the mode switching signal is no longer in the active state, the machine "freezes" at the end of the current game and cannot then be played again 10 until a member of the casino staff operates a "cancel credit" (or jackpot) key switch 19 (see Fig. 2) to clear the credit meter and reinstate the credit previously held therein prior to entry into the second or tournament mode. This resetting of the machine and switching back to 15 first mode may be accomplished by the central tournament controller or by a casino attendant on each individual machine. Before clearing the credit meter, the casino staff member may assess the value achieved on the credit meter during the tournament mode operation and award 20 prizes to players on the basis of the scores achieved.

Once the credit meter has been reinstated to the value which it held prior to the commencement of tournament mode, the "press to collect" button is also reinstated and the machine will once again operate in its 25 first or normal play mode in which a credit must be held in the machine before initiation of a game can commence and credits are deducted from the credit meter on each play of the machine.

It will be recognized by persons skilled in the art 30 that the present invention is applicable to all kinds of slot machines including video slot machines and slot machines having stepping motor driven or free spinning reel displays. However, whereas machines having free spinning wheels have return rates determined by the 35 physical placement of indicia on those reels, stepping

motor driven reel machines and video machines have return rates determined by the random number generating algorithms in the control unit and the mapping of the numbers so generated to the available display indicia.

5 Therefore, while the odds of the free spinning reel machines are substantially fixed it is possible to alter the odds in stepping motor driven machines and video machines by running a different selection algorithm and in these machines it is proposed that the odds available
10 during tournament mode would be changed to provide a higher rate of return, or winning combinations of indicia.

Multi-line machines (that is, machines which are capable of examining multiple combinations of indicia on the indicia display 18 when determining winning
15 combinations) can also have their odds altered by "paying" on more than one line (and preferably on all available lines) when the machine is in tournament mode.

It is also envisaged that in the tournament mode as in the first or normal play mode the player can select the
20 desired number of credits to be played with for each game.

In a further embodiment of the invention, the simple tournament mode control signal described herein could be replaced by a communication system connecting all of the machines in the tournament group, whereby interactive
25 games between machines could be run during tournament mode and whereby the scores of each machine at the end of the tournament could be reported to the controller in order that the controller could select the machine or machines within the group with a winning total score, which might
30 be selected as the highest score or by some other criteria.

It will be recognised by persons skilled in the art that numerous variations and modifications may be made to the invention as described above without departing from the spirit or scope of the invention as broadly described.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1. A slot machine of a type comprising:
 - (a) credit means, for crediting a player with a number of credits;
 - (b) game initiation means operable by the player to initiate a game on the machine;
 - (c) display means adapted to display a plurality of indicia in response to the game initiation means;
 - (d) credit adjustment means arranged to alter the credit means in response to combinations of indicia shown by the display means;
 - (e) payout means operable by the player to return a payment corresponding to the credit recorded by the credit means; and
 - (f) control means for controlling the slot machine wherein the control means is provided with two operating modes, a first mode to prevent operation of the game initiation means unless a credit is recorded in the credit means and enable operation of the payout means, a second mode allowing operation of the game initiation means regardless of the credit recorded in the credit means, and preventing operation of the payout means only, such that switching between modes occurs in response to an electronic mode switching signal fed to the control means, said switching signal being sourced externally of the machine.
2. A slot machine as claimed in claim 1 wherein switching from the second mode to the first mode is also controlled by an electronic mode switching signal, sourced externally of the machine and fed to the control means.
3. A slot machine as claimed in claim 1 wherein switching from the second mode to the first mode is performed manually on each machine.
4. A slot machine as claimed in any one of claims 1 to 3 wherein the electronic mode switching signal is produced

by a central control unit to which a plurality of slot machines are connected.

5. A slot machine as claimed in claim 4 wherein the central control unit includes a timer means which sets a prescribed period of time for each machine to remain in the second mode of operation.

6. A slot machine as claimed in any one of claims 1 to 5 wherein prior to switching the machine to the second mode of operation, the credit recorded in the credit means is stored temporarily by the machine, for retrieval when the machine is switched back to the first mode of operation.

7. A slot machine as claimed in any one of the preceding claims wherein any game initiated when the machine is in the first mode is completed prior to the machine being switched to the second mode.

8. A slot machine as claimed in any one of the preceding claims wherein the credit means is set to zero credit when the machine is switched to the second mode.

9. A slot machine as claimed in any one of the preceding claims wherein no credit is deducted from the credit means for each game played when the machine is operated in the second mode.

10. A gaming system comprising a plurality of slot machines connected to a central control unit, each machine having a credit means for crediting a player with a number of credits and a payout means operable by the player to return a payment corresponding to the credit recorded by the credit means, each machine being operable in two modes, a first mode in which a player must establish a credit with the credit means of the machine before a game can be initiated with that machine, and a second mode in which the player can initiate a game with the machine regardless of the credit recorded in the credit means of that machine, the payout means only being operable in the first mode, wherein the central control unit has a plurality of mode switching signal outputs which are

connected to the respective mode switching signal inputs of each machine such that switching between the modes of operation for each machine is controllable from the central control unit.

11. A gaming system as claimed in claim 10 wherein the central control unit includes a timer means which sets a prescribed period of time for each machine to remain in the second mode of operation.

12. A gaming system as claimed in claim 10 or 11 wherein switching from the second to the first mode of operation is also controlled by the central control unit.

13. A gaming system as claimed in claim 10 or 11 wherein switching from second to first mode of operation is performed manually on each machine.

14. A gaming system as claimed in any one of claims 11 to 13 wherein the timer means comprises group and sub-group timers, the group timers setting a prescribed period of time for a plurality of machines to remain in the second mode of operation, the sub-group timers setting a prescribed period of time for at least one machine to remain in the second mode of operation there being a plurality of sub-group timers for each group timer.

15. A gaming system as claimed in any one of claims 10 to 14 wherein prior to switching from first to second mode of operation, the credit recorded in the credit means of each machine is stored temporarily by the machine, for retrieval by the player when the machine is switched back to the first mode of operation.

16. A gaming system as claimed in any one of claims 10 to 15 wherein any game commenced while the machine is in the first mode of operation must be completed prior to the machine being switched to the second mode.

17. A slot machine substantially as hereinbefore described with reference to the accompanying drawings.

18. A gaming system substantially as hereinbefore described with reference to the accompanying drawings.

DATED this 25th day of September 1989

AINSWORTH NOMINEES PTY. LTD.
Patent Attorneys for the
Applicant:

F.B. RICE & CO.

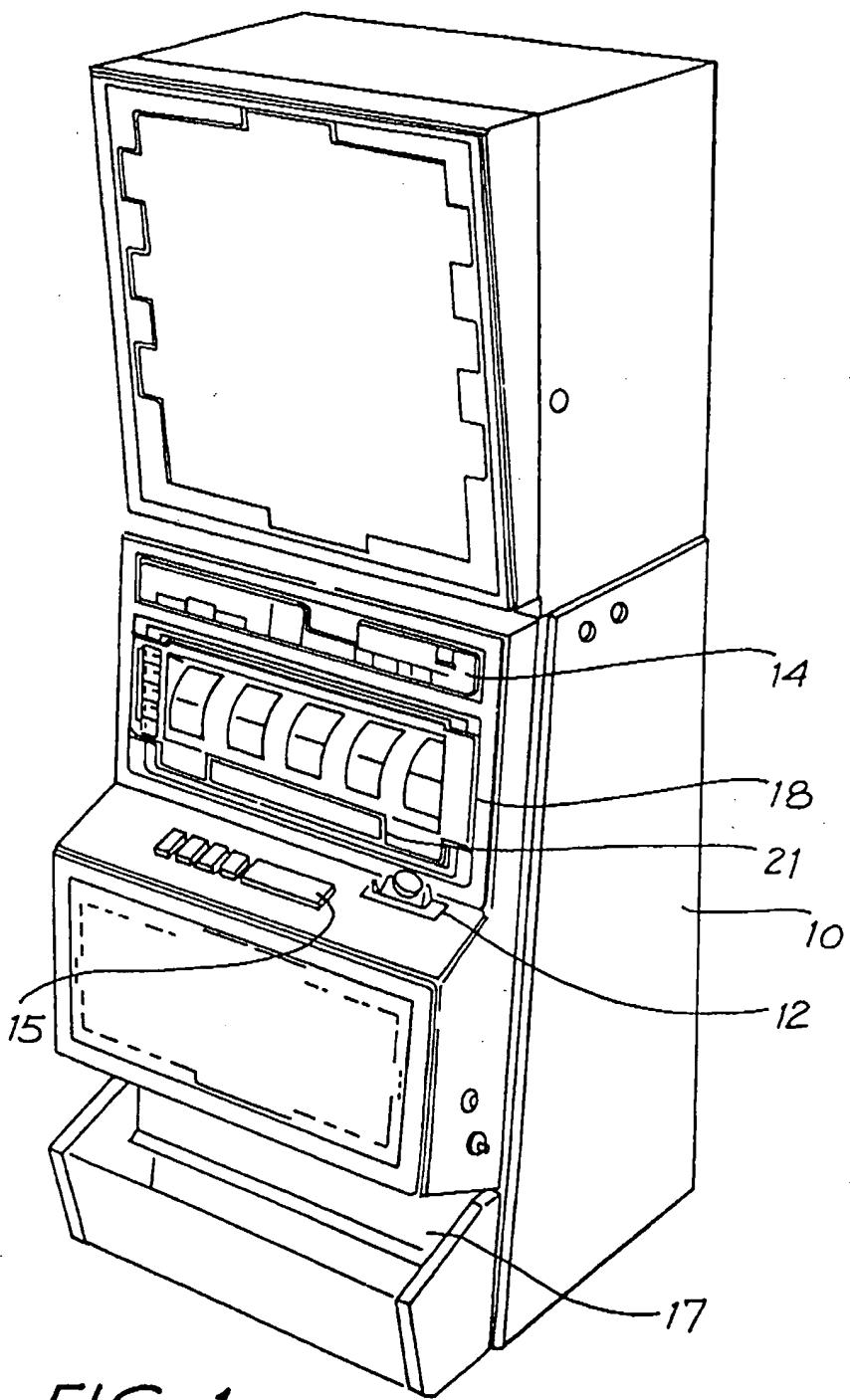


FIG. 1

42326/89

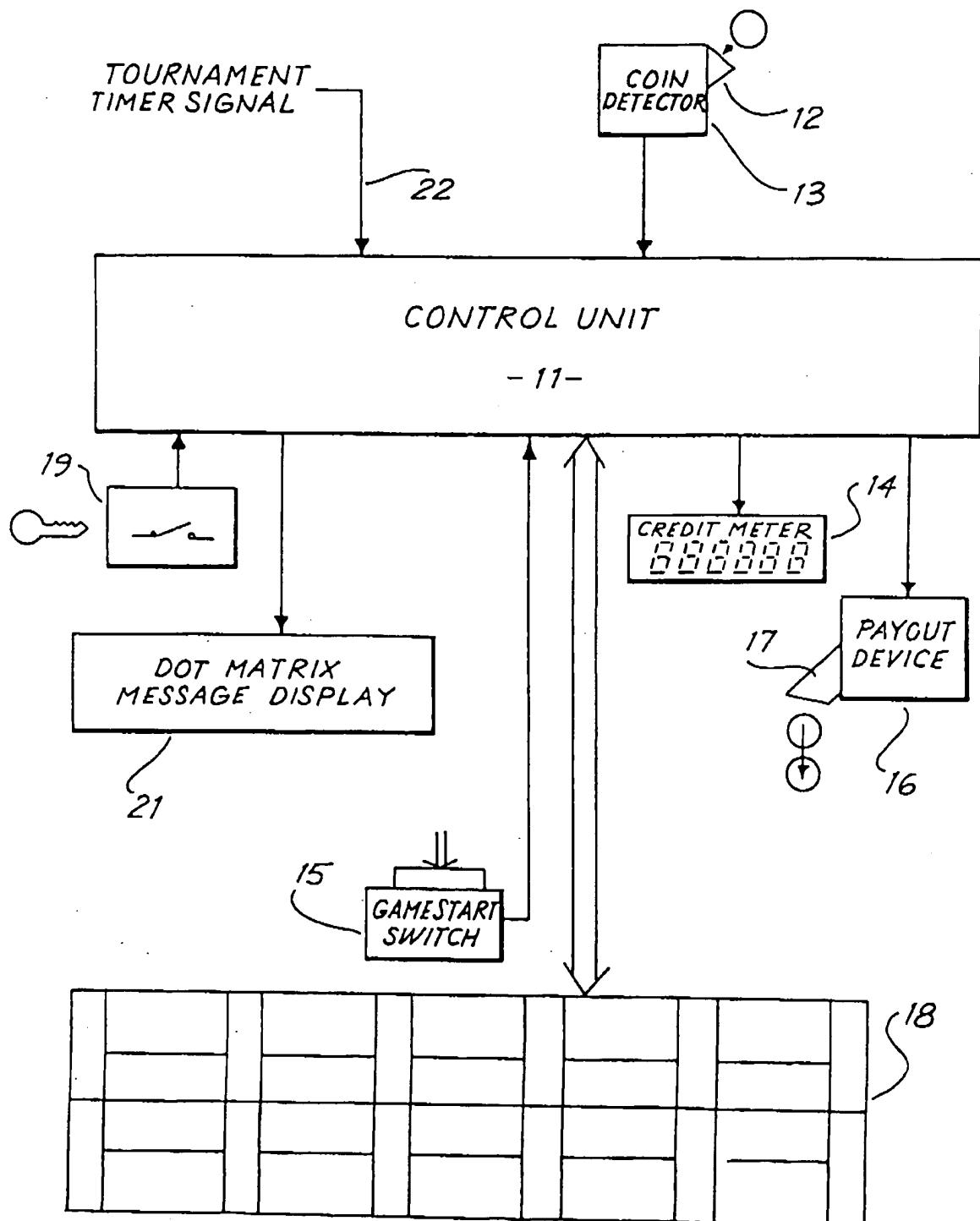
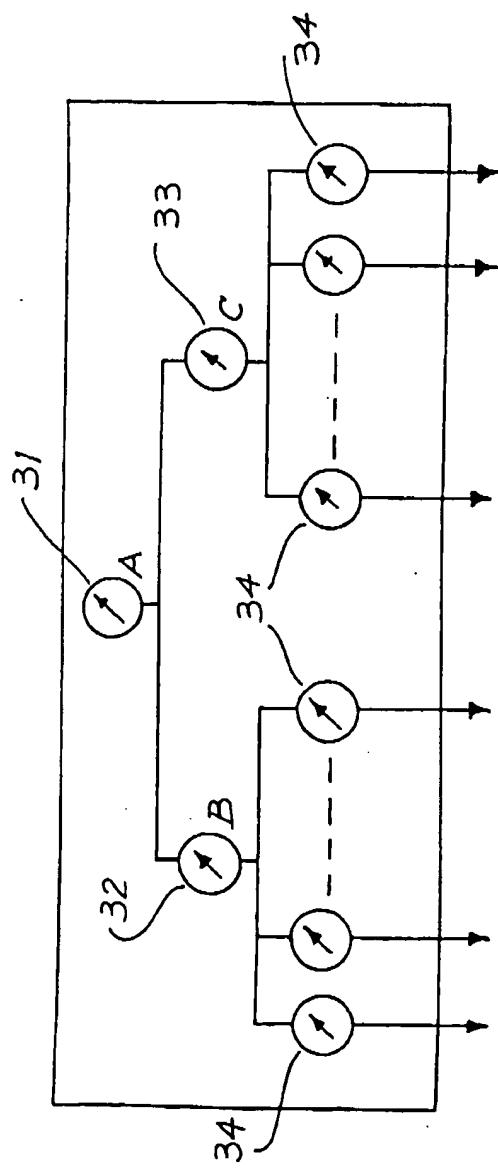


FIG. 2

210 3 33 42 32 3



TO POKER MACHINES

FIG. 3

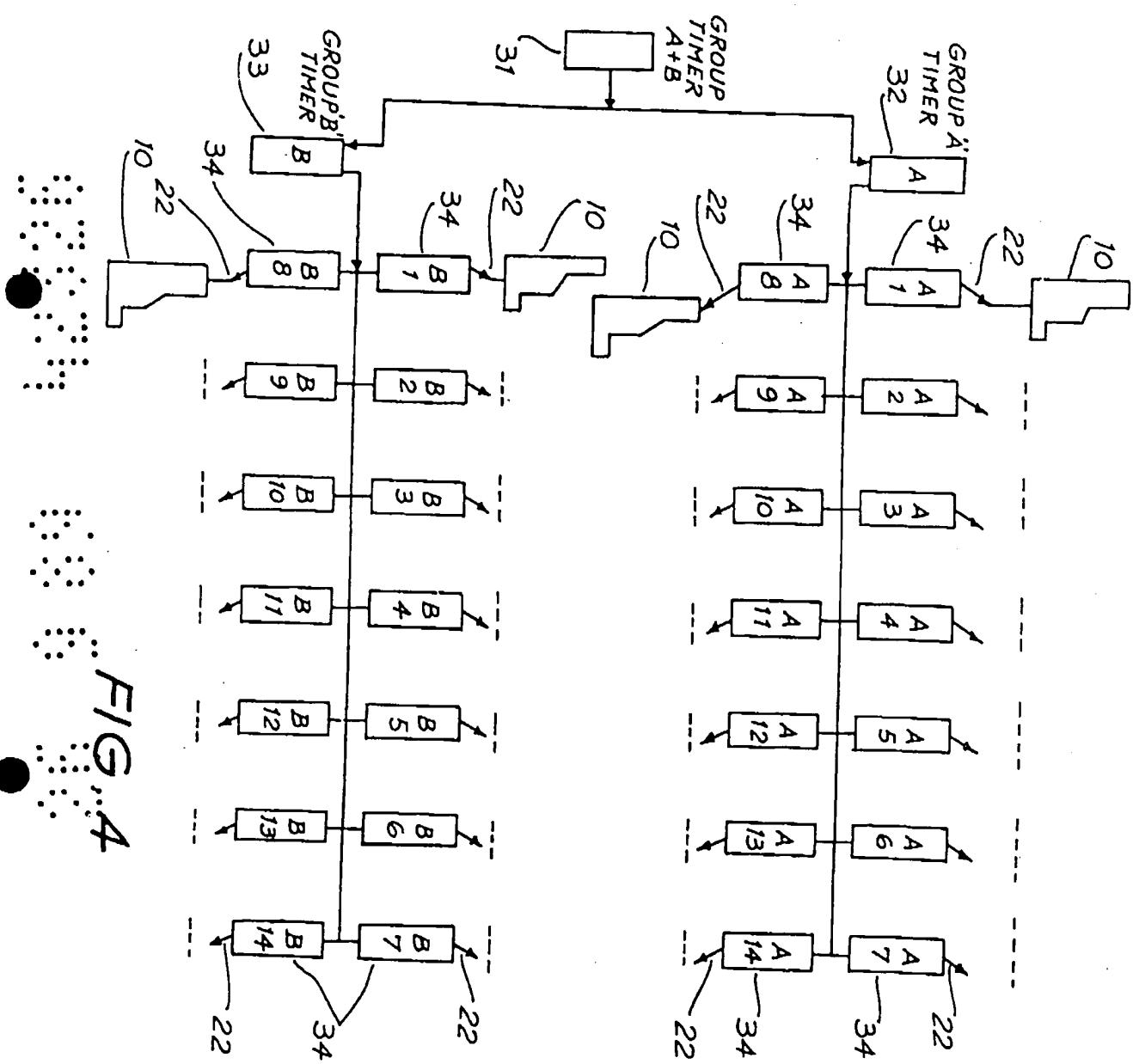


FIG. 4

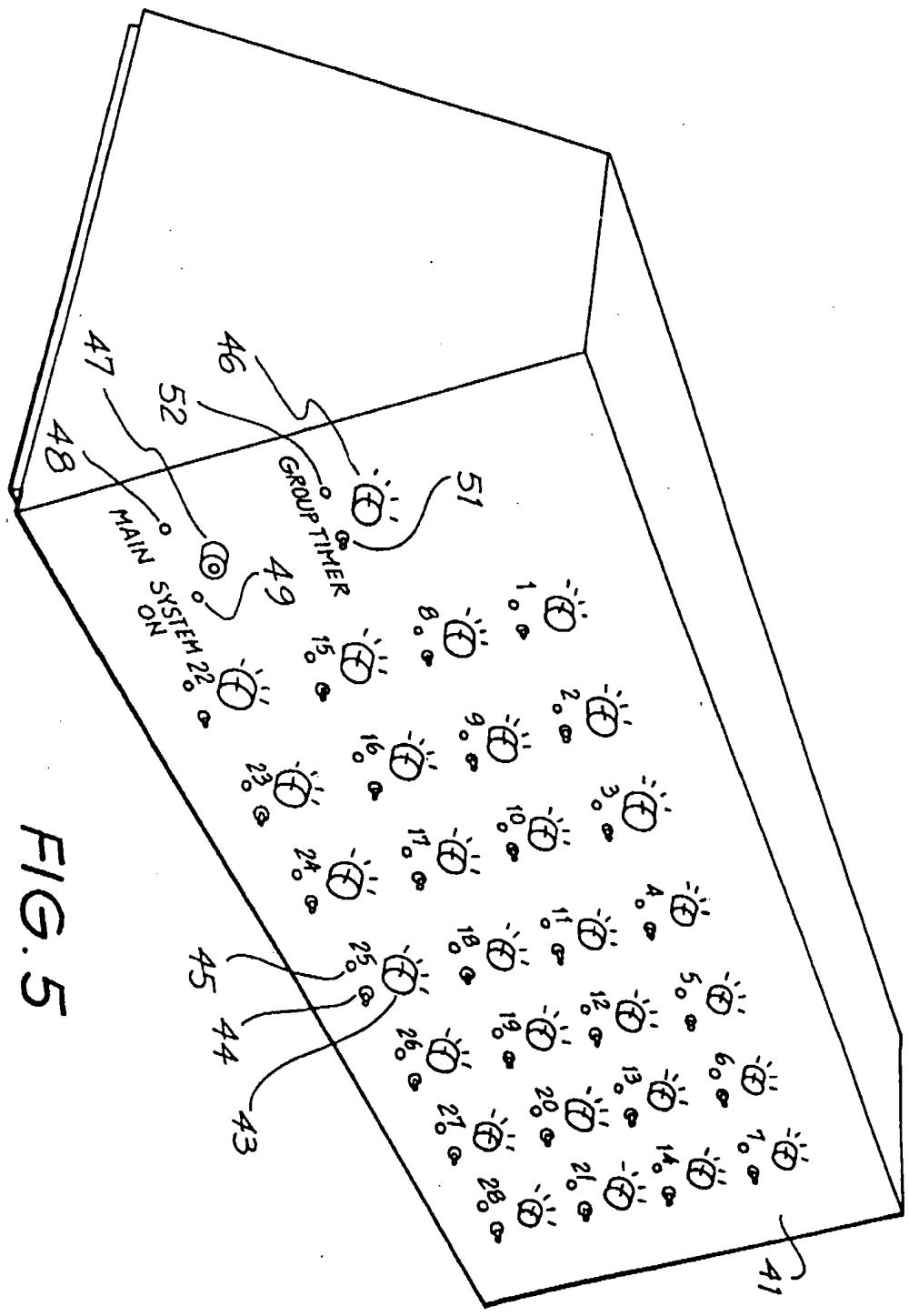


FIG. 5

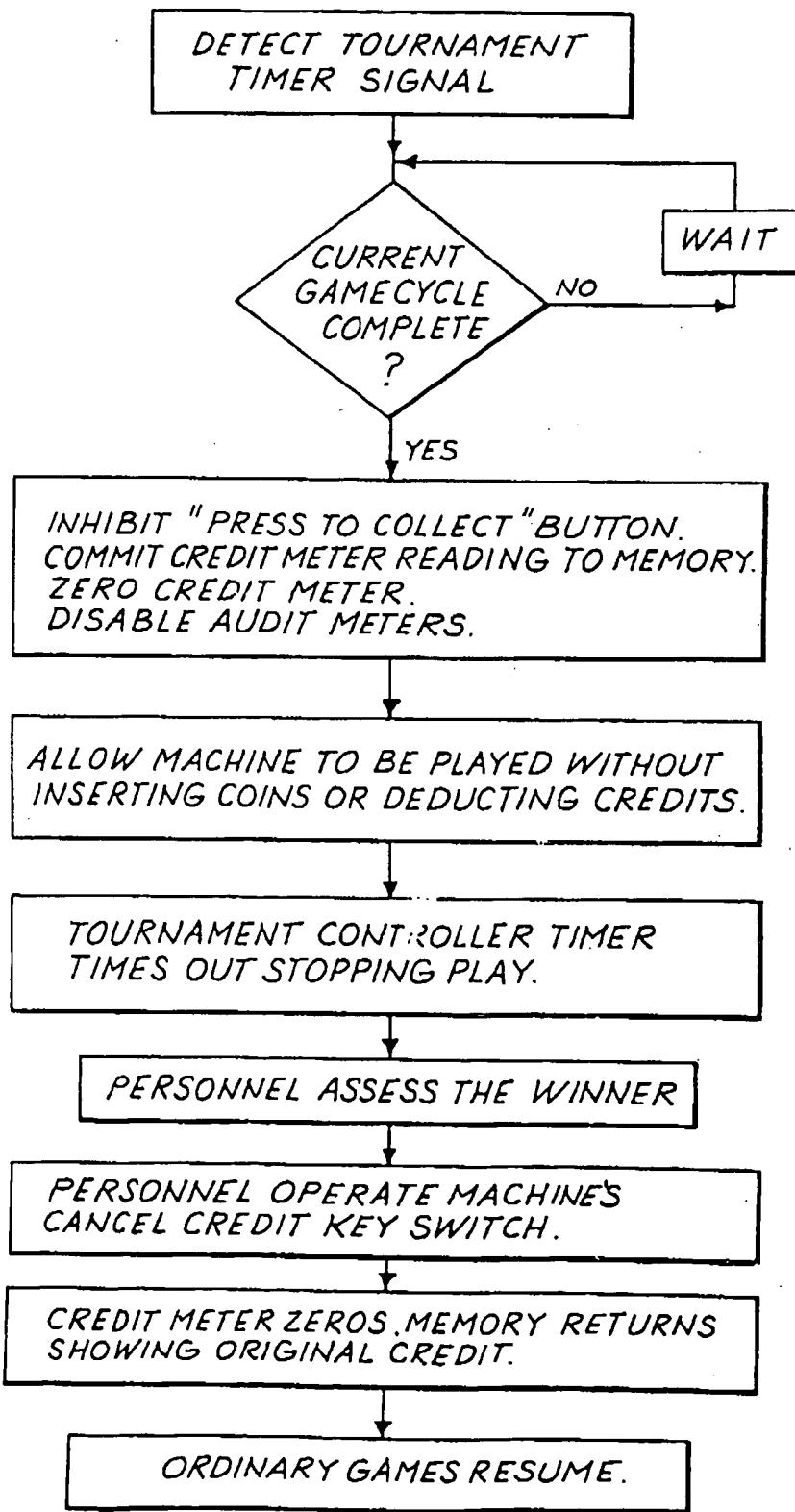


FIG. 6

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